

30A SBR® Super Barrier Rectifier

Features

- Ultra Low Forward Voltage Drop
- Excellent High Temperature Stability
- Superior Reverse Avalanche Capability
- Patented Super Barrier Rectifier Technology
- Soft, Fast Switching Capability
- 150°C Operating Junction Temperature
- Plastic TO-220AB package
- **Lead Free Finish, RoHS Compliant (Note 3)**

Mechanical Data

- Case Material: Molded Plastic, UL Flammability Classification Rating 94V-0
- Moisture Sensitivity: Level 1 per J-STD-020C
- Terminals: Matte Tin Finish annealed over Copper leadframe. Solderable per MIL-STD-202, Method 208 **(e3)**
- Marking Information: See Page 3
- Ordering Information: See Page 3

Maximum Ratings @ T_A = 25°C unless otherwise specified

Single phase, half wave, 60Hz, resistive or inductive load.
For capacitive load, derate current by 20%.

Characteristic	Symbol	Value	Unit
Peak Repetitive Reverse Voltage	V _{RRM}	30	V
Working Peak Reverse Voltage	V _{RWM}		
DC Blocking Voltage	V _{RM}		
RMS Reverse Voltage	V _{R(RMS)}	21	V
Average Rectified Output Current @ T _C = 140°C	I _O	30	A
Non-Repetitive Peak Forward Surge Current 8.3ms Single Half Sine-Wave Superimposed on Rated Load	I _{FSM}	280	A
Non-Repetitive Avalanche Energy (T _J = 25°C, I _{AS} = 20A, L = 8.5 mH)	E _{AS}	800	mJ
Repetitive Peak Avalanche Power (1μs, 25°C)	P _{ARM}	9800	W
Maximum Thermal Resistance			
Thermal Resistance Junction to Ambient (Note 1)	R _{θJA}	17	°C/W
Thermal Resistance Junction to Case	R _{θJC}	2	
Operating and Storage Temperature Range	T _J , T _{STG}	-65 to +150	°C

Electrical Characteristics @ T_A = 25°C unless otherwise specified

Characteristic	Symbol	Min	Typ	Max	Unit	Test Condition
Reverse Breakdown Voltage (Note 2)	V _{(BR)R}	30	-	-	V	I _R = 1.5mA
Forward Voltage Drop (per leg)	V _F	-	0.41	0.45	V	I _F = 15A, T _J = 25°C
			0.50	0.54		I _F = 30A, T _J = 25°C
			0.34	0.37		I _F = 15A, T _J = 125°C
			—	0.5		I _F = 30A, T _J = 125°C
Leakage Current (Note 2)	I _R	-	0.33	1.5	mA	V _R = 30V, T _J = 25°C
			40	100		V _R = 30V, T _J = 125°C

Notes:

1. Test Device on Heatsink (Black Aluminum, 45mm * 20mm * 12mm)
2. Short duration pulse test used to minimize self-heating effect.
3. RoHS revision 13.2.2003. High temperature solder exemption applied, see *EU Directive Annex Note 7*.

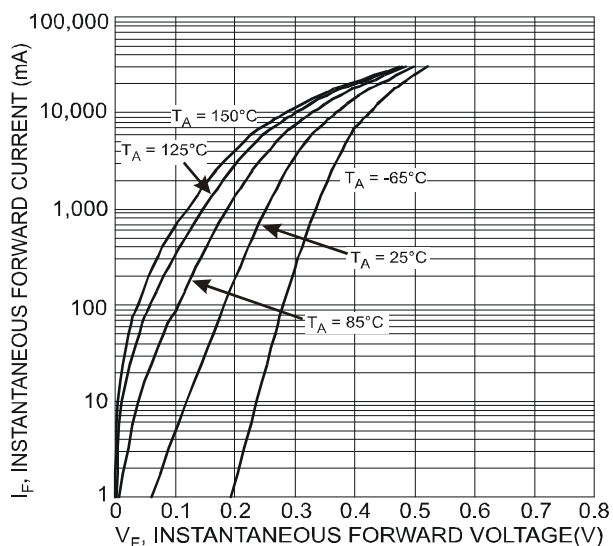


Fig. 1 Typical Forward Characteristics, Per Element

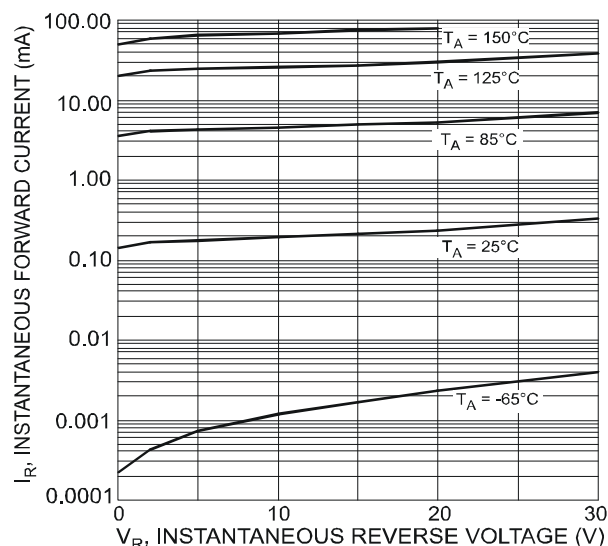


Fig. 2 Typical Reverse Characteristics, Per Element

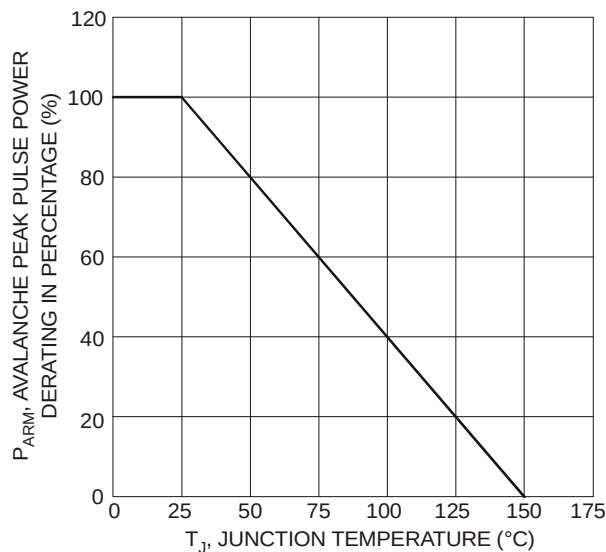


Fig. 3 Pulse Derating Curve, Per Element

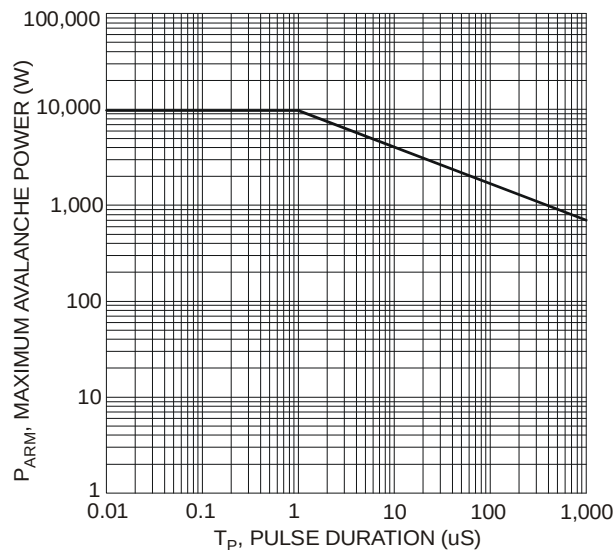


Fig. 4 Maximum Avalanche Power Curve, Per Element

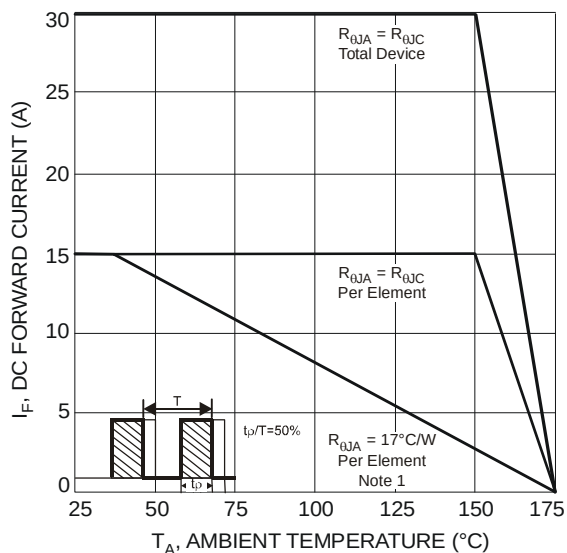


Fig. 5 DC Forward Current Derating

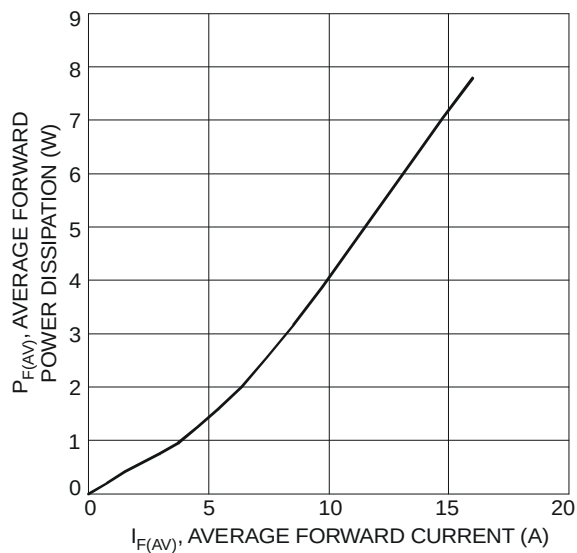
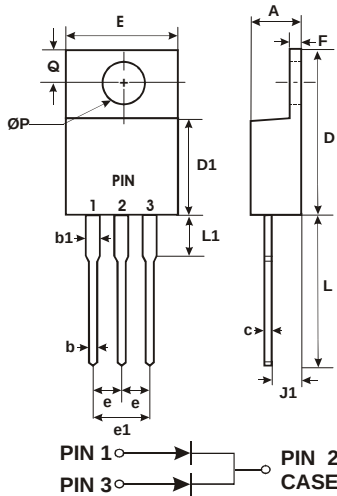


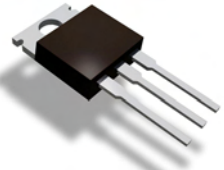
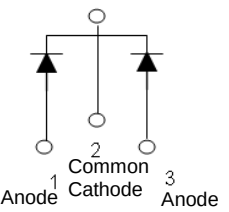
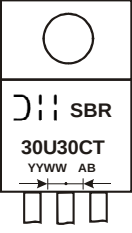
Fig. 6 Forward Power Dissipation

Package Outline Drawing



TO-220AB		
DIM.	MIN.	MAX.
A	4.47	4.67
b	0.71	0.91
b1	1.17	1.37
c	0.31	0.53
D	14.65	15.35
D1	8.50	8.90
E	10.01	10.31
e	2.54 typ	
e1	4.98	5.18
F	1.17	1.37
J1	2.52	2.82
L	13.40	13.80
L1	3.56	3.96
ØP	3.735	3.935
Q	2.59	2.89
All Dimensions in Millimeters		

Marking, Polarity, Weight & Ordering Information

SBR30U30CT	Case Style	Polarity	Marking	Weight
	 TO-220AB			2.1g

Ordering Information	Date Code	Other Marking Information
SBR30U30CT 50 pieces/tube	YY = Last two digits of year, ex = 07 = 2007 WW = Week (01-52)	A = Foundry Code B = Assembly Code

IMPORTANT NOTICE

Diodes Incorporated and its subsidiaries reserve the right to make modifications, enhancements, improvements, corrections or other changes without further notice to any product herein. Diodes Incorporated does not assume any liability arising out of the application or use of any product described herein; neither does it convey any license under its patent rights, nor the rights of others. The user of products in such applications shall assume all risks of such use and will agree to hold Diodes Incorporated and all the companies whose products are represented on our website, harmless against all damages.

LIFE SUPPORT

Diodes Incorporated products are not authorized for use as critical components in life support devices or systems without the expressed written approval of the President of Diodes Incorporated.